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UNITED STATES DEPARTMENT OF AGRICULTURE
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: Engineering societies are taking an increasingly important part:
: in the development of technical information, promoting research:
: in engineering problems and in advancing the professional :
: standards of engineers. Hence it is the duty of every engineer:
: to give such societies all possible support. More than that, :
: the technical societies supply those contacts and opportunities:
: which are so necessary to the professional advancement of the :
: engineer. Passive membership is not sufficient, for the more :
: interest one takes in the society and its work the greater will:
: be the benefits received. What you get out depends on what :
: you put in. :
:.....

Enclosed with this NEWS LETTER is a copy of the first Annual Report of the bureau. If you should not care to keep it please return it to the Washington office, for the supply of this publication is very limited.

L. A. Jones is inspecting the experiment in drainage of sugar cane land being conducted by B. O. Childs at Houma, La. He will also visit the soil erosion experiment farms at Bethany, Mo., and La Crosse, Wis. and will confer with C. E. Ramser at Zanesville, Ohio, to determine a tentative program of engineering experiments in soil erosion.

Twice during the month the vocational teachers of the Piedmont area of South Carolina had the opportunity of attending a special two-day school to study soil erosion control methods. These meetings were arranged by the State Department of Education and the Division of Education of Clemson Agricultural College. F.O. Bartel of this Bureau and H. H. Bennett of the Bureau of Chemistry and Soils were among those giving instructions at the schools.

G. R. Shier has continued the studies of drainage districts in southern Minnesota. None of the bonds of drainage districts in this section are in default because the counties guarantee payments of such bonds and interest. In some instances the State of Minnesota has refunded drainage district bonds at 4 1/4 per cent interest.

A series of experiments on the flow of water around bends are about to be undertaken by D. L. Yarnell. He plans to measure velocity at a number of points in order to determine the amount and direction of flow and also to determine the pressure distribution at different locations. Mr. Yarnell has started the manufacture of 6-inch pyralin pipe of which approximately 50 feet will be required in the tests.

Several days during the last week in October were spent by R.R. Drake in laying out and superintending construction of terraces on the Snare Brothers Farm near Cripple Creek, Colo. This work was done in cooperation with T. G. Stewart, Agronomist of the Extension Service and W. E. Code, Irrigation Engineer of the State Agricultural Experiment Station. This is reported to be the first terracing work done by state agencies in Colorado.

A. T. Holman reports that on the Bethany farm variable-graded terraces in a field that was check planted to corn, with discing, harrowing and cultivating operations performed without regard to the direction of terraces, were lowered an average of 3 inches during the year. As the season progressed it was observed that the slight irregularities in the water channel in the lower half or two thirds of each terrace disappeared and the grade became more uniform. In the upper third of the two longest terraces, which are over 2,000 feet long with small grade, the irregularities in the water channel became more noticeable as the season progressed.

Practically all construction work has been completed on the LaCrosse project. G.E. Ryerson reports that 15 Parshall flumes, Bristol recorders and silt samplers have been installed. Ten of these complete run-off and silt measuring devices were installed on terraces and five were installed on watersheds, comprising pasture, unterraced cultivated land, timber to be used for pasture, timber with no pasturing, and a recently cleared timbered area.

Subsoiling work was completed on the deep-tillage plots during the latter part of October on the Pullman project. P. C. McGrew reports that the 5-G chisel was operated at a depth of 12 inches, points being spaced 18 inches apart. The chisel was pulled by a Caterpillar-20 tractor and the draft was approximately the same as for a three-bottom 16-inch plow. Due to rains prior to the tillage operations, the ground was wet to a depth of 7 to 9 inches. The point of the chisel cut 3 to 5 inches into the dry soil but the fracture did not extend between the points of the chisel at the greatest depth. All of the ground at the surface and to a depth of 6 inches was loosened.

The installation of all measuring equipment on the soil erosion experiment farm near Clarinda, Iowa has been completed by R.A. Norton. Twenty silt sampling units have been installed on 16 terraces, 3 unterraced areas, and one terraced area, each unit consisting of a Parshall flume, Bristol recorder and complete silt sampler.

H. E. Bergschneider recently completed the installation of three complete run-off and silt sampling units on the State experiment farm near Ardmore, Okla. This work was done in cooperation with the Guthrie erosion experiment station. On the two Oklahoma State farms there are now installed 8 complete units, 5 at Ardmore and 3 on the experiment farm near Heavener.

A. T. Mitchelson and M. R. Lewis visited the Walla Walla Valley, in Washington and Oregon, to locate some wells for ground-water studies proposed to be undertaken cooperatively between the Oregon Experiment Station and the U. S. Geological Survey. This study is expected to be coordinated with a study of the possibility of artificial recharging of the ground-water storage by means of spreading flood waters over gravelly areas.

Work on the experimental reclamation tract near Caldwell, Idaho, carried on by J. C. Marr has been completed. The tract has been greatly benefited by these experiments so much so that from now on it will be leased as a farm whereas prior to 1927 it consisted of absolutely worthless land.

At the experimental tract at San Dimas, Calif. in charge of Dean W. Bloodgood certain plots were irrigated during the middle and latter parts of October for a cover crop of mustard which was planted October 7 these irrigations being light as it was desired to wet only the surface soil in order to germinate the seed and give the plants a good start before the rainy season starts.

In the vortex sandtrap studies at the Bellvue laboratory conducted by R. L. Parshall, observations have extended over a series of settings where the lip of the trap was first at 90 degrees or normal to the current, and then moved upstream at angles of 15, 30, 45 and 60 degrees, these settings all being made for a tube of constant diameter of 4 inches with a gap opening of 6 inches, the lower part of the tube being one inch lower in elevation than the upper. With a 45° setting, and a mean velocity over lip of 7 1/2 feet per second, the rotation was 500 r.p.m. at a point about 8 inches from the lower end of the tube. For this setting a cobblestone weighing 4 3/4 lbs. was readily moved in the tube.

A.A. Young spent the greater part of the month of October in the Berkeley office compiling data for the completion of a bulletin started by Dr. Samuel Fortier prior to his retirement, on "Irrigation Requirements of the Arid and Semiarid Lands of the Pacific Slope."

O.K. Hedden is carrying on experimental burning work at Troy, Kans. in cooperation with the Agricultural Engineering and Entomology Departments of Kansas State College for control of apple curculio.

Tests of covering attachments for plows developed at Toledo, Ohio were made by R. M. Merrill and A. H. Graves at Urbana, Ill. and Ames, Iowa. A heavy rain and snow at Ames prevented completion of this work.

A combination corn picker and stalk chopper developed at Toledo is being tested in the field to discover its effectiveness in killing corn borers in heavily infested corn. Preliminary tests of this machine appear to be favorable.

R. B. Gray and Frank Irons spent Nov. 2 and 3 in Trenton, N.J. looking for suitable quarters to house the Bureau's eastern corn borer machinery force, now stationed at South Norwalk, Conn.

The Joint Committee on Fertilizer Application, on which are represented the American Societies of Agricultural Engineering and Agronomy, the National Association of Farm Equipment Manufacturers, and the National Fertilizer Association, held its annual meeting in Washington, D. C. on Nov. 16. Messrs. McCrory, Gray, Lyle, Cumings, and Redit were in attendance. Current results of the cooperative experiments on machine application of fertilizers were reported and included tests with corn, cotton, potatoes, beans, and sugar beets at 36 locations in 21 States. The Bureau is cooperating in 32 of these experiments in 19 States. In general, placement of fertilizer in a band on each side of the seed was indicated as preferable for corn, cotton and beans.

In connection with the sugar beet machinery project, E.M. Mervine states that "the perfect sugar beet harvester seems to be just around the corner." Two years ago it was described as an impossibility. This season, in Colorado where the harvester was given trials, the performance was quite satisfactory, doing a topping job similar to that done by the hand laborers, making a satisfactory separation of leaves, stems, and soil from the beets, and leaving the field, the piled tops, and the large piles of beets in more desirable condition than is customary with hand labor.

Fields of hill dropped beets (instead of the conventional row drilled, hand blocked beets) were inspected at Chaska, Minn. The success of this method would probably effect a saving both because of less seed and because of less labor required.

Three weeks were spent by S. W. McBirney, at Fort Collins during the beet harvest season, assisting in gathering data on harvester trials and in making comparisons with the more difficult California conditions.

J. W. Randolph reports that experiments in Alabama in varying the use of cotton production machinery were completed. Upon the Prattville field the soil preparation varied from none followed by average shallow cultivation which produced 1,212 pounds of seed cotton per acre to plowing 22 inches deep followed with similar cultivation which produced 1,403 pounds of cotton. The draft of seed-bed preparation machinery reached a maximum of 7,500 pounds. Land with no preparation and hoe cultivation produced 883 pounds of cotton, while plots with good preparation and hoe cultivation had an average yield of 1,233 pounds. Yields of cotton planted with the Bureau's variable depth planter show in 60 per cent of the cases more cotton than other methods of planting. A patent has been granted for this type of planter.

On the corn production machinery project, Claude K. Shedd reports that tests of picker-huskers which were started last year are being continued this fall at Ames, Iowa.

In a series of experiments at Jeanerette, La. carried on by E. D. Gordon recently with the alfalfa harvester on fifth cutting of alfalfa hay, comparison of moisture losses from hay run through the crusher with these from uncrushed hay showed 1.15 times as much water evaporated from the crushed hay as from that not crushed. This ratio of moisture loss occurred when the average relative humidity was 59 per cent. When the relative humidity averaged 28 per cent (unusually low for that section), the moisture loss ratio between the two methods of curing alfalfa was 1.43 : 1. Under average conditions at Jeanerette it was found that the ratio for Biloxi soybeans is 1.30 : 1. It may be inferred from this that the length of time for curing various forage crops can be speeded up by 15 to 30 per cent.

On November 16 and 17 Chas. A. Bennett inspected factory-built, cotton driers designed by the Bureau of Agricultural Engineering at 6 points in Arkansas, and two in Kentucky.

A paper entitled "A Study of Stable Temperatures" will be presented by M.A.R. Kelley at the Chicago meeting of the Structures Division American Society of Agricultural Engineers, November 28. Mr. Kelley will also present a brief summary of the work on which the above paper was based in his report to the American Society of Animal Production.

Tests of pressures in an experimental corncrib at Toledo are being conducted by J. R. McCalmont. The pressures are being measured on panels approximately 4 feet square which are supported by calibrated steel spring bars. The deflection of the bars will give a direct measurement of the pressure on the panel.

A number of farmers in Aroostook County, Maine have installed ventilating flues in their potato houses according to plans prepared by A.D. Edgar.

In collaboration with Dr. W. B. White of the Geophysics Laboratory W. V. Hukill is constructing a calorimeter for measuring the vital heat of fruits and vegetables. Thermocouples used in these measurements are designed to read temperature changes to 0.001 degrees F.